



**Compact all-in-one weather sensor with measurement of temperature, relative humidity, air pressure, wind direction, wind speed and radiation.**

- **Parameters measured**

Temperature, relative humidity, air pressure, wind direction, wind speed, radiation

- **Measurement technology**

Ultrasonic/Wind, NTC/T, Capacitive/RH, MEMS capacitive/Pressure, Tilttable Pyranometer Lufft/Radiation

- **Product highlights**

Wind detection with birdproof construction. Compact all-in-one weather sensor, tilttable pyranometer, low power, heater, aspirated radiation shield, maintenance-free operation, open communication protocol.

- **Interfaces**

RS485 with supported protocols UMB-Binary, UMB-ASCII, Modbus-RTU, Modbus-ASCII, XDR and SDI-12

- **Article number**

8375.U12

From the WS product family of professional intelligent measurement transducers with digital interface for environmental applications. Integrated design with ventilated radiation protection for measuring: Air temperature, relative humidity, air pressure, wind direction, wind speed and radiation. One external temperature or rain sensor is connectable.

**IMPORTANT:** WS504 is discontinued

| General                    |   |
|----------------------------|---|
| Dimensions                 | Ø approx. 150 mm, Height approx. 377 mm                         |
| Weight                     | Approx. 1.5 kg  |
| Interface                  | RS485, 2 - wire, half - duplex                                  |
| Power supply               | 11...32 VDC   |
| Power supply               | 5...11 VDC (electronics with limited precision of measurements) |
| Power supply               | 24 VDC +/- 10% (heater)   |
| Power consumption          | 20 VA (heater)  |
| Operating temperature      | -50...60 °C (with heater)                                       |
| Operating rel. humidity    | 0...100 % RH  |
| Cable length               | 10 m  |
| Protection level housing   | IP66  |
| Standards/Regulations      | Compliant to IEC 61724-1:2017 Class C                           |
| Mast mounting suitable for | Mast diameter 60 - 76 mm  |

| Radiation  |                       |
|--|-----------------------|
| Unit   | W/m <sup>2</sup>      |
| Accuracy   | 5 %                   |
| Response time (95%)                                    | < 1 s                 |
| Non-stability(change/year)                             | ±1 %                  |
| Non-linearity (0 to 1000 W/m <sup>2</sup> )            | ±1 %                  |
| Directional error (at 80° with 1000 W/m <sup>2</sup> ) | ±20 W/m <sup>2</sup>  |
| Temperature dependence of sensitivity                  | ±5 % (-10 to + 40 °C) |
| Tilt error (at 1000 W/m <sup>2</sup> )                 | ±1 %                  |
| Spectral range   | 300...1100 nm         |
| Measuring range  | 1400 W/m <sup>2</sup> |

| Temperature     |  |
|-----------------|--|
| Principle       | NTC  |
| Measuring range | -50 ... 60 °C                                      |
| Unit            | °C   |
| Accuracy        | ±0.2 °C (-20...50 °C), otherwise ±0.5 °C (>-30 °C) |

| Relative humidity |                |
|-------------------|----------------|
| Principle         | Capacitive     |
| Measuring range   | 0 ... 100 % RH |
| Unit              | % RH           |
| Accuracy          | ±2 % RH        |

| Air pressure    |                      |
|-----------------|----------------------|
| Principle       | MEMS capacitive      |
| Measuring range | 300 ... 1200 hPa     |
| Unit            | hPa                  |
| Accuracy        | ±0.5 hPa (0...40 °C) |

| Wind direction  |                      |
|-----------------|----------------------|
| Principle       | Ultrasonic           |
| Measuring range | 0 ... 359.9 °        |
| Unit            | °                    |
| Accuracy        | < 3 ° RMSE > 1.0 m/s |
| Resolution      | 0.1                  |

| Wind speed      |  |
|-----------------|--|
| Principle       | Ultrasonic                                       |
| Measuring range | 0 ... 75 m/s                                     |
| Unit            | m/s  |
| Accuracy        | ±0.3 m/s or ±3 % (0...35 m/s) ±5 % (>35 m/s) RMS |
| Resolution      | 0.1 m/s  |